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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/698,712	10/27/2000	Hong Heather Yu	9432-000122	5774

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Harness Dickey & Pierce PLC
P O Box 828
Bloomfield Hills, MI   48303

EXAMINER
VAUGHAN, MICHAEL R

ART UNIT	PAPER NUMBER
2131	

DATE MAILED: 02/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)
	09/698,712	YU ET AL.
	Examiner	Art Unit
	Michael R Vaughan	2131

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>27 October 2000</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-25</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-25</u> is/are rejected.

7)☒ Claim(s) <u>15,18,22,24 and 25</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>27 October 2000</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date <u>2</u>.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____ .

DETAILED ACTION

1. Claims 1-25 have been examined and are pending.

Specification

2. The abstract of the disclosure is objected to because the last sentence has a grammatical error, which renders the last sentence incoherent and incomplete. Correction is required. See MPEP § 608.01(b).

Information Disclosure Statement

3. An initialed and dated copy of Applicant's IDS form 1449, Paper No. 2, is attached to the instant Office action. The three references on the IDS were not included with the application and therefore do not comply with MPEP 609. Applicant should resubmit the references if they are to be considered. Examiner is enclosing a copy of references 2 and 3, which were found by the Examiner that were used in the immediate office action.

Claim Objections

4. Claims 15 and 24 are objected to because they are independent claims but rely on a method as recited in claim 1. The general requirement for independent claims is that they stand-alone. The Examiner suggests putting all the limitations of the method of claim 1 into claims 15 and 24 such that if claim 1 is amended or canceled, then claims 15 and 24 are not affected.

5. Claim 18 is objected to because of minor typographical errors such as "andusing" on line 12.

6. Claim 22 is objected to because of minor typographical error "s", --is--, on line 10.

7. Claim 25 is objected to because of minor typographical error "an", --a--, on line 3.

Claim Rejections - 35 USC ' 112, second paragraph

8. Claims 22 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 22 recites the limitation "said memory expresses" in line 7. There is insufficient antecedent basis for this limitation in the

claim. Claim 23 recites the limitation "said processor accesses" in line 12. Clarification

and/or correction are required.

Claim Rejections - 35 USC ' 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form

the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

> (b) the invention was patented or described in a printed publication in this or a
>
> foreign country or in public use or on sale in this country, more than one year
>
> prior to the date of application for patent in the United States.

9. Claims 1-9, 11-14, 19-21, 23, and 25 are rejected under 35 U.S.C. 102(b) as

being anticipated by Multi-level Data Hiding for Digital Image and Video (herein Wu).

As per claim 1, Wu teaches partitioning the digital data into a plurality of blocks;

extracting signature information from a first one of said blocks; selecting a second one

of said blocks as a masking block; embedding said signature information of said first

block in said masking block (see section 2.1).

As per claim 2, Wu teaches repeating said extracting, selecting and embedding

steps for each of said plurality of blocks (section 2.1).

As per claim 3, Wu teaches repeating said extracting, selecting and embedding steps for each of said plurality of blocks such that each of said plurality of blocks serves as a masking block for one and only one other block (section 2.2.4).

As per claims 4, Wu teaches selecting step is performed by scanning said plurality of blocks using a predefined scanning pattern (section 2.2.3).

As per claim 5, Wu teaches expressing said plurality of blocks in a predetermined column and row format and wherein said scanning pattern traverses a diagonal zig-zag pattern across said column and row format (see figure 4).

As per claim 6, Wu teaches said extracted signature information is content-associative signature information (sections 2.2.1 and 2.3.1).

As per claim 7, Wu teaches said extracted signature information is generated by expressing said data in the frequency domain having corresponding frequency coefficients and by using a selected portion of said frequency coefficients to generate said signature information (section 2.2.2).

As per claim 8, Wu teaches embedding step is performed so as to minimize the perceptibility of said signature information within said masking block (section 2.2.2).

As per claim 9, Wu teaches embedding step is performed using a data hiding technique in which the least significant bits of the masking block are altered based on the signature information (section 2.2.2).

As per claim 11, Wu teaches step of selecting a masking block is performed using a circular selection strategy whereby said first block both provides signature information to and receives signature information from a linked list of blocks containing at least one third block (column 2.2.4).

As per claim 12, Wu teaches the step of selecting a masking block is performed using a random selection strategy whereby said first block and said second block are selected by a random shuffle algorithm (section 2.2.4).

As per claim 13, Wu teaches embedding step is performed using a nonlinear embedding strategy whereby the amount of signature information stored in a given block is controlled based on the data content of that block (section 2.3.1).

As per claim 14, Wu teaches embedding step is performed using a nonlinear embedding strategy whereby said plurality of blocks are classified according to a predetermined set of block types and wherein the amount of signature information stored in a given block is controlled based on the given block's block type (sections 2.2.4 and 2.3.1).

As per claim 19, Wu teaches a memory for partitioning said digital data into a plurality of blocks including a first block and a second block; a processor for extracting signature information from a first one of said 5 blocks and embedding said signature information in said second block (see sections 1, 2.1, and the results which were simulated on a computer).

As per claim 20, Wu teaches said processor employs a data hiding algorithm to embed said signature information into said second block (section 2.1).

As per claim 21, Wu teaches memory stores said digital data expressed in the frequency domain with corresponding frequency coefficients and wherein said data processor includes an extraction algorithm that uses a selected portion of said frequency coefficients to generate said signature information (section 2.2.2).

As per claim 23, Wu teaches said processor accesses said memory to define said first and second blocks in a circular strategy whereby said first block both provides signature information to and receives signature information from a linked list of blocks containing at least one third block all defined in said memory (section 2.2.4).

As per claim 25, Wu teaches a partition of digital data defining a plurality of blocks;

a signature information component extracted from a first one of said blocks and

embedded in a second one of said blocks (section 2.1).

10. Claims 15-17 are rejected under 35 U.S.C. 102(b) as being anticipated by

Block Shuffling and Adaptive Interleaving for Still Image Transmission Over Rayleigh

Fading Channels (herein Chan).

As per claim 15, Chan teaches examining said one of said blocks to detect if an

error condition exists in that block, upon detection of an error condition, accessing said

second block to retrieve the signature information of said first block, and using said

retrieved signature information to make repairs to said first block (see Introduction

section, I.).

As per claim 16, Chan teaches comprising identifying additional blocks in a

neighborhood associated with said first block and using said additional blocks along

with said retrieved signature information to make repairs to said first block (see section

II.D, Error Concealment).

As per claim 17, Chan teaches a multidirectional interpolation process is

performed on said additional blocks to make repairs to said first block (see section II.D,

Error Concealment).

Claim Rejections - 35 USC ' 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed
>
> or described as set forth in section 102 of this title, if the differences between
>
> the subject matter sought to be patented and the prior art are such that the
>
> subject matter as a whole would have been obvious at the time the invention
>
> was made to a person having ordinary skill in the art to which said subject
>
> matter pertains. Patentability shall not be negatived by the manner in which
>
> the invention was made.

11. Claims 10, 15, 18, 22, and 24 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Wu in view of Chan.

As per claims 10 and 22, Wu fails to explicitly teach the step of selecting a

masking block is performed by expressing said plurality of blocks geometrically and by

maximizing the distance between said first and second blocks. Chan does teach the

step of selecting a masking block is performed by expressing said plurality of blocks

geometrically and by maximizing the distance between said first and second blocks (see

section II. A, Block Shuffling Algorithm). Chan teaches that maximizing the distance

between the first and second block decreases the likelihood of both block having an

error. Therefore, this increases the chance to repair the error of a block.

In view of this, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to employ the teaching of Chan within the system of Wu

because it would increase the possibility of error recovery. One skilled in the art would

have been motivated to generate the claimed invention with a reasonable expectation of

success.

Claims 15 and 24, are also rejected under 35 USC 103(a) if they rewritten to

include all the limitations of claim 1 or if put into dependent form. Wu fails to teach

partitioning the digital data into a plurality of blocks, extracting signature information

from a first one of said blocks; selecting a second one of said blocks as a masking

block, and embedding said signature information of said first block in said masking

block (see section 2.1) but fails to teach examining said one of said blocks to detect if

an error condition exists in that block, upon detection of an error condition, accessing

said second block to retrieve the signature information of said first block, and using said

retrieved signature information to make repairs to said first block.

Chan teaches examining said one of said blocks to detect if an error condition

exists in that block, upon detection of an error condition, accessing said second block to

retrieve the signature information of said first block, and using said retrieved signature

information to make repairs to said first block (see Introduction section, I.). It would be

advantageous to be able to recover the signature information in case of an error in transmission so that ownership can still be proved.

In view of this, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the teaching of Chan within the system of Wu because it would allow the signatory information to be recovered even if some data is loss during transmission. One skilled in the art would have been motivated to generate the claimed invention with a reasonable expectation of success.

As per claim 18, Wu fails to teach identifying additional blocks in a neighborhood associated with said first block; extracting edge signature information from said additional blocks; and using said extracted edge information in generating said signature information. Chan teaches identifying additional blocks in a neighborhood associated with said first block; extracting edge signature information from said additional blocks; and using said extracted edge information in generating said signature information (see section II.D, Error Concealment). Chan teaches that knowledge of edge information can help minimize the blocking effects after error concealment. Therefore, the likelihood of recovering the hidden data is greater.

In view of this, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the teaching of Chan within the system of Wu because it would allow the signatory information to be recovered even if some data is loss during transmission. One skilled in the art would have been motivated to generate the claimed invention with a reasonable expectation of success.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Michael R Vaughan whose telephone number is 703-

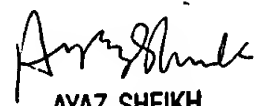305-0354. The examiner can normally be reached on M-F 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Ayaz Sheikh can be reached on 703-305-9648. The fax phone number for

the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

MV
Michael R Vaughan

Examiner

Art Unit 2131

AYAZ SHEIKH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100